

CPIA Fiscal Year 2008 Annual Work Plan

Revised November 7, 2007

Program Title

Clear Creek Restoration - CVPIA Section 3406(b)(12).

Responsible Entities

Staff Name	Agency	Role
Jim De Staso	Reclamation	Lead
Matt Brown	FWS	Co-Lead

Program Goals and Objectives for FY 2008

Goal A - Provide flows to allow sufficient spawning, incubation, rearing, and outmigration for salmon and steelhead.

Objectives: 1) provide available habitat that's at least 90 percent of the maximum possible weighted usable area, 2) do not exceed Igo gauge water temperature criteria including 60°F from June 1 through September 15, and 56°F from September 15 through October 31, and 3) provide passage allowing at least 70 percent of adult anadromous fish able to pass upstream of the former McCormick-Saeltzer Dam location.

Task 1.4.2 – EWP channel maintenance flows, surveying, permitting and analysis.

Goal B – Restore the stream channel and associated instream habitat.

Objectives: 1) restore entire 2 mile section of Clear Creek degraded by aggregate and gold mining, and 2) annually inject 17,000 tons of spawning gravel to recharge system.

Task 1.4.1 – Revegetate Phase 2A of the Stream Channel Restoration Project.

Task 1.4.3 – Gravel additions at about 6 sites to provide approximately 6,800 tons (40 percent of CPAR gravel goal).

Task 1.4.4 – Cloverview Long-term Gravel Source Project feasibility report, project design and permitting.

Task 1.4.5 – Riparian encroachment and restoration needs inventory.

Task 1.5.1 – Continue studying spawning gravel transport rates and supplementation requirements.

Goal C – Determine if restoration actions are beneficial to the anadromous fishery.

Objective: Conduct fishery and geomorphic monitoring at levels necessary to ascertain project effects on fishery and geomorphic resources.

Task 1.12.1 – Conduct adult and juvenile monitoring using techniques including snorkeling and rotary screw trapping.

Supporting documents include: 1) CVPIA Section 3406 (b)(12); 2) Record of Decision, Central Valley Project Improvement Act; 3) CALFED Bay-Delta Programmatic Record of Decision, proposed Ecosystem Restoration Program stage 1 actions; 4) CALFED Ecosystem Restoration Program Strategic Plan For Ecosystem Restoration, action 3, page D-23; 5) Biological Opinion, Effects of the Central Valley Project and State Water Project Operations from October 1998 through March 2000 on Steelhead and Spring-run Chinook Salmon; and 6) Biological Opinion on the Long-Term Central Valley Project and State Water Project Operations Criteria and Plan, October 2004.

Status of the Program

Flows

Interim flow increases began in 1995 and have occurred every year since. Pre-CVPIA baseline flows were 50 cfs between January and October and 100 cfs in November and December. Under (b)(2), interim flows were increased to 200 cfs from mid September through mid June and approximately 70 to 90 cfs during the summer for temperature control. This interim flow prescription was recommended by the AFRP Working Paper which derived its recommendations from an IFIM study conducted in the mid 1980's. The FWS began a new IFIM study in 2004 to reassess flow requirements taking into account changes in instream habitat resulting from CVPIA restoration efforts. A new long-term flow schedule will likely be proposed following completion of the IFIM study in about 2009.

The CALFED Environmental Water Program (EWP) and the FWS have proposed to Reclamation a re-operation of Whiskeytown Dam, between March 1 and May 15, such that a glory hole spill produces a target downstream flow of 3,250 cfs for one day occurring three times in a ten year. It is thought that flows of this magnitude and duration would reactivate fluvial geomorphic processes to re-create and maintain diverse instream and floodplain habitat required to support and recover aquatic and riparian species.

McCormick-Saeltzer Dam Passage

McCormick-Saeltzer Dam was removed in the fall of 2000. Passage of spring Chinook has increased from 0 to 70 percent allowing potential establishment of a new population of this threatened species. Stream surveys and juvenile monitoring results also suggest that dam removal is allowing re-establishment of spring Chinook as well as a new population of threatened Central Valley steelhead.

Stream Channel Restoration

The Stream Channel Restoration project is a construction project designed to eliminate gravel extraction pits, restore a functional floodplain, and increase salmonid spawning and juvenile rearing habitat in a 2 mile section of creek significantly degraded by gold and aggregate mining. Four Phases of the project are complete including: Phase 1 in 1998, Phase 2A in 1999, Phase 2B in 2001, and Phase 3A in 2002.

Construction of Phase 1, 2A and 2B primarily resulted in gravel extraction pits being filled-in and restoration of function floodplains. Phase 3A relocated and relocated a 1,400 ft section of stream channel as well as restoration of functional floodplains. Spawning area use in the new 3A channel is now more than 400 % greater than in the previous un-restored channel. Use of the new channel for juvenile Chinook rearing was higher than expected. Geomorphic monitoring has shown that the new stream channel and floodplain have functioned as intended during target flows: 1) the stream bed mobilizes; 2) the floodplain inundates; 3) fine sediments needed for development of riparian vegetation, deposit on the floodplain; 4) the stream channel migrates laterally across the floodplain; and 5) spawning, incubation, rearing and outmigration habitat for salmon and steelhead is being created and maintained. In addition, re-vegetation efforts have been very successful and there has been a notable increase in habitat use by riparian song birds. Phase 3B implementation began in June 2007 with expected completion in June 2008. Phase 3C, the last phase of the project, is currently being considered for design and permitting in future years.

Spawning Gravel Supplementation

Spawning gravel supplementation is a long-term need created by the construction of Whiskeytown Dam, which blocks gravel from moving downstream into the areas of Clear Creek where salmonids spawn. By the year 2020 the overall goal is to provide 347,288 square feet of usable spawning habitat between Whiskeytown Dam downstream to the former McCormick-Saeltzer Dam, the amount that existed before construction of Whiskeytown Dam. Between 1995 and 2007, a total of approximately 110,000 tons of spawning gravel was added to the creek. The 2001 Gravel Management Plan was revised in 2007 and will provide an overall gravel injection strategy for the creek including annual tons to be added and specific injection locations. The programs' interim annual spawning gravel addition target was 25,000 tons per year, but only an average of 3,318 tons were placed annually since 1996 due to lack of funding.

Erosion Control

An Erosion Inventory Report was completed in 1996 and between 1997 and 2001 the highest priority erosion control projects were implemented by cooperators from the FWS, National Park Service, and the Bureau of Land Management. All feasible and cost effective projects were finished by 2001.

Adaptive Management/Monitoring

Ongoing monitoring studies involve salmonid use of restored habitat, fish stranding and passage, juvenile salmonid out-migration, adult population estimates, redd mapping, neotropical migratory bird populations, riparian vegetation, wetlands, groundwater, stream flows, water temperatures, bedload movement, channel geomorphology, and spawning gravel quality. Monitoring is conducted at levels allowing accurate statistical assessments of program impacts on salmonid escapement, production, and habitat.

FY 2007 Accomplishments

Flows

Base flows of 200 cfs between October 1 and May 31 were achieved. Flows to achieve temperature control of 60°F from June 1 through September 15 and 56°F from September 15 through October 31 were met 100 percent of the time.

The IFIM study, being conducted by the FWS, completed a final report on spring Chinook and steelhead upper reach spawning. The study also continued data collection on fall Chinook spawning study sites in the lower reach of Clear Creek and began data collection for juvenile fall Chinook rearing habitat suitability criteria.

Reclamation, the FWS, and the CALFED EWP continued to analyze the feasibility of re-operating Whiskeytown Dam to provide intermediate magnitude and duration flows. Two documents are being prepared: the draft Evaluation of Environmental Water Program (EWP) Pilot Re-operation of Whiskeytown Dam, and the final draft Technical Memorandum NO.WHI-8130-IE-2007-1 Evaluation of Environmental Water Program (EWP): Pilot Re-operation of Whiskeytown Dam.

Stream Channel Restoration

Phase 3B designs and environmental permits for the Stream Channel Restoration Project were completed. Implementation of Phase 3B began in June 2007 and is expected to be completed (except for revegetation) in November 2007. Even before the project was fully completed Chinook salmon could be seen building redds in the newly placed spawning riffles.

Spawning Gravel Supplementation

Spawning Gravel injects occurred at Whiskeytown Dam (3000 tons added January 2007), Placer Road Bridge (5000 tons added August 2007), and Phase 3A (2000 tons added August 2007). An Executive Summary for the 2006 Update to the Clear Creek Gravel Management Plan was finalized. The document contains results from ongoing gravel monitoring, and provides preliminary information on the amount of gravel needed to recharge and maintain spawning gravel levels in the creek. The Paige Bar and Above Peltier Bridge Gravel Injection Designs (March 2007) was also prepared. This document presents designs and methodology for several new gravel injection sites within a two mile reach of Clear Creek downstream of Whiskeytown Dam. Development of new injection sites in this reach is important for the continued recovery of spring-run Chinook and steelhead populations.

Adaptive Management / Monitoring

Monitoring continues to document the success of the project and the importance of dealing with the remaining limiting factors. In 2006, fall Chinook escapement was 8,422 compared to the average baseline escapement of 1,689 between 1967 and 1991. The adult spring Chinook population index continue to increase from a low of zero in 2001 to 194 in 2007. Adult steelhead populations also continue to increase, as indicated from redd counts, increasing from about 38 in 2001 to 162 in 2007. In spite of increases in adult anadromous fish, juvenile production has decreased since 1996 from 7.4 to 3.4 million fish. And the number of juvenile fall-run Chinook produced per adult female has decreased from about 2900 in 1998 to 375 in

2005. These decreases are due in part to excessive amounts of fine sediment in the stream channel that could be removed by intermediate flows or prevented by erosion control. Monitoring of geomorphology, riparian vegetation and neotropical migratory birds is funded by CALFED.

FY 2008 Tasks, Costs, Schedules and Deliverables

Task or Subtask Number	Name of Activity	FTE's	Description of Activity	Completion Date	Total Cost	Funding Source RF	Funding Source WRR
1.1	Program Management						
1.1.1		0.3	USBR	9/30/2008	\$50,000		\$50,000
	<u>Subtotal Costs</u>				\$50,000		\$50,000
1.2	Program Support						
1.2.1		0.3	USFWS	9/30/2008	\$50,000	\$50,000	
	<u>Subtotal Costs</u>				\$50,000	\$50,000	
1.4	Restoration Actions Summary						
1.4.1	Priority High		Revegetate Phase 2A of the Stream Channel Restoration Project	9/30/2008	\$67,000	\$67,000	
1.4.2	Priority High		EWP channel maintenance flows, surveying, permitting, and analysis.	9/30/2008	\$50,000	\$25,000	\$25,000
1.4.3	Priority High		Gravel additions at about 6 sites to provide approximately 6,800 tons (40 percent of CPAR gravel goal).	9/30/2008	\$250,000	\$250,000	
1.4.4	Priority High		Cloverview Long-term Gravel Source Project-feasibility report and project design and permitting.	9/30/2008	\$146,257	\$121,257	\$25,000
1.4.5	Priority Medium		Riparian encroachment and restoration needs inventory.	9/30/2008	\$50,000	\$50,000	
			UNMET NEEDS: \$500,000 for additional gravel additions at about 6 sites providing about 10,200 tons for remaining 60 percent of CPAR gravel goal (associated with line 1.4.3) and \$50,000 to permit Cloverview Long-Term Gravel Source Project (associated with line 1.4.4).		\$550,000		
	<u>Subtotal Costs</u>				\$1,113,257	\$513,257	\$50,000
1.5	Evaluations Studies Investigations Research						
1.5.1	Priority High		Continue studying spawning gravel transport rates and supplementation requirements	9/30/2008	\$21,000	\$21,000	

Task or Subtask Number	Name of Activity	FTE's	Description of Activity	Completion Date	Total Cost	Funding Source RF	Funding Source WRR
1.5.2	Priority High		EWP flows survey and additional analyses (associated with line 1.4.2)	9/30/2008			
1.5.3	Priority Medium		Riparian encroachment and restoration needs inventory (see line 1.4.6)	9/30/2008			
	<u>Subtotal Costs</u>						
1.8	Planning						
1.8.1	Priority High		Cloverview Long-Term Gravel Source Project feasibility report preparation (associated with line 1.4.4)	9/30/2008			
	<u>Subtotal Costs</u>						
1.9	Environmental Compliance						
1.9.1	Priority High		EWP flows permitting (see line 1.4.2)	9/30/2008			
	<u>Subtotal Costs</u>						
1.10	Design						
1.10.1	Priority High		Cloverview Long-Term Gravel Source Project design prepared if warranted by feasibility study (associated with line 1.4.4)	9/30/2008			
	<u>Subtotal Costs</u>						
1.11	Construction						
1.11.1	Priority High		Gravel additions at about 6 sites to provide 40% of CPAR gravel goal (see line 1.4.3)	9/30/2008			
	<u>Subtotal Costs</u>						
1.12	Monitoring						
1.12.1	Priority High		Salmonid monitoring conducted by the FWS could include (depending upon which elements are funded by CALFED): juvenile habitat use, spawning area mapping, juvenile habitat suitability indices, adult salmonid escapement, juvenile salmonid production, spawning gravel quality, survival-to-emergence, fish rescue, benthic macro-invertebrate	9/30/2008	\$187,000	\$187,000	

Task or Subtask Number	Name of Activity	FTE's	Description of Activity	Completion Date	Total Cost	Funding Source RF	Funding Source WRR
			sampling, water quality (Hg) and water temperature.				
	<u>Subtotal Costs</u>				\$187,000	\$187,000	
1.14	Other						
1.14.1	Priority High		Provide funding to the Bella Vista Water District for Power Use Energy to wheel McConnell Foundation water	9/30/2008	\$28,743	\$28,743	
	Subtotal Costs				\$28,743	\$28,743	
	Total Costs				\$1,450,000	\$800,000	\$100,000
	Service Funding (lines 1.2.1, 1.4.5, 1.12.1)					\$287,000	\$0
	Reclamation Funding (lines 1.1.1, 1.4.1, 1.4.2, 1.4.3, 1.4.4)					\$513,000	\$100,000

CVPIA Program Budget

Budget Breakout

Task	Agency	FTE	Direct Salary and Benefits Costs	Contract Costs	Misc. Costs	Admin Costs	Total Costs
1.1 Program Management	FWS						
	BOR	0.3	50000				50000
1.2 Program Support	FWS	0.3	50000				50000
	BOR						
1.4 Restoration Actions	FWS		50000				50000
	BOR			542000			542000
1.5 Evaluations, Studies, Investigations, Research	FWS						
	BOR			21000			21000
1.12 Monitoring	FWS		187000				187000
	BOR						
1.13 Modeling	FWS						
	BOR						
FWS Total Costs			287000	0	0	0	287000
BOR Total Costs			50000	563000	0	0	613000
Total			337000	563000	0	0	900000

Five Year Budget Plan

DRAFT CVPIA 5-Year Budget Plan FY 2009 – 2013

(\$ Thousands)

Funding Source	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total
W&RR	150	150	235	255	260	1050
RF	4225	1325	1165	645	590	7950
State	0	0	0	0	0	0
Other (identify)	0	0	0	0	0	0
Total	4375	1475	1400	900	850	

	2009		2010		2011		2012		2013	
	WRR	RF	WRR	RF	WRR	RF	WRR	RF	WRR	RF
Activity										
PM Costs	100		110		115		120		125	
Phase 3C		4025		965		500				
Gravel	100	150	400		585		580		525	

	2009	2010	2011	2012	2013
Monitoring	275	275	200	200	200
Total (WRR+RF)	4375	1475	1400	900	850